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30 April 2017

Hon. Justice R. Pepper  
Chair  
Hydraulic Fracturing Inquiry  
GPO Box 4396  
Darwin NT 0801

Dear Justice Pepper

The following attachment is NARMCO's submission to the Scientific Inquiry into Hydraulic Fracturing in the NT.

Should you or any panel member have any queries regarding this submission I can be contacted by email at [REDACTED] or by phone at [REDACTED].

Regards

A handwritten signature in blue ink, appearing to read "Teresa Cummings", is placed on a light yellow rectangular background.

Teresa Cummings  
Corporate Manager  
NARMCO

## **Submission to the Scientific Inquiry into Hydraulic Fracturing in the NT.**

### **BACKGROUND**

NARMCO is an Indigenous business and employment development consultancy company based in Katherine. NARMCO formed in 2003.

NARMCO is a founding member of Katherine Mining Services Association (KMSA). NARMCO has attended more than 14 information sessions relating to the hydraulic fracturing processes being proposed in the NT plus undertaken additional research and readings.

Some information sessions NARMCO has attended have been delivered at several anti-fracking forums; one session was provided by CSIRO; several sessions have been provided by third parties associated with the Mining and Onshore Gas Industries; 6 information sessions were convened by a partnership of three industry associations (Chamber of Commerce NT, Katherine Mining Services Association and Sturt Plateau Best Practice Group – Cattle property owners), a briefing provided specifically to KMSA by one of the gas explorers and producers; and a briefing provided specifically to KMSA by the CEO of Dept of Mines and Energy.

NARMCO has attended 4 x NT Resources Week conferences, 4 x Katherine Regional Mining and Exploration Forums, 3 x Annual Geoscience Exploration Seminars (AGES) and 1 Minerals Council Conference.

NARMCO Director has visited the worksite of Santo's exploration well at Tanumbirini Station, the deepest onshore exploration wells in Australia. NARMCO Director and two other KMSA members received a detailed briefing on the establishment and progress of the exploration well.

### **SUMMARY**

NARMCO was initially cautious of the hydraulic fracturing processes being proposed in the NT and this caution was fuel by claims made by the anti-fracking movement.

However after researching the subject and hearing from many different sources, for, against and neutral, NARMCO is satisfied that the proposed hydraulic fracturing processes, 'fracking', being proposed for the NT does not present an unacceptable risk to the NT's environment, economy or its population's health and well-being.

NARMCO is of the view that hydraulic fracturing activity should be approved to occur in the NT. Many potential risks associated with hydraulic fracturing could bring are very similar to risks associated with other industries in the NT. These industries have acceptable mitigation processes and strategies and the community is tolerant of these industries. NARMCO is satisfied that the onshore gas industry using hydraulic fracturing also has acceptable mitigation processes and strategies for all of its potential risks.

## **1 WATER**

NARMCO has reviewed the possible water risks outlined in the 'Background and Issues Paper'.

### Ground water

NARMCO is satisfied that the processes used, the engineering and manufacturing of the well infrastructure, the management of the wells and the management of waste water are such that hydraulic fracturing poses little risk to the ground water, including cross contamination of aquifers. The 24hr monitoring of all wells is an acceptable precaution that monitors well integrity. Any change in behaviour or malfunction will be detected immediately, despite the wells being in remote and very remote areas.

In terms of water usage and potential to deplete water resources, the gas companies have defined their water use per well. Gas companies can be regulated (if not already) to measure their use of ground water. Currently pastoralist are not accountable for their water usage for grazing stock, not matter how large the herd is. At times pastoral bores do dry up, so by default it can be assumed that they are at times extracting more water than is sustainable. At a community level we are either oblivious to this or tolerate this unsustainable use without protest.

### Surface Water

Whilst there is potential for onsite spills that could impact on surface water, these are the same risks that other industries currently experience in the NT. At a community level we accept dangerous chemicals being handled and used in our towns and cities and it is such an everyday occurrence that it occurs in a seemingly invisible manner.

There is adequate legislation, regulation and Australian Standards to address these risks, eg chemical handling, transportation of chemicals or toxic waste, storage of contaminated water and the like. The high standards of work practices and engineering designs associated with hydraulic fracturing are added assurances that onsite spillages are less likely to occur than in other industries.

### Water Usage

Gas companies have already discovered unknown aquifers during their exploration activities and are likely to discover more. The new discoveries have been brackish and future discoveries are also likely to be brackish and therefore unsuitable for stock and human consumption, however this water is likely to be suited for fracking. Using new sources of water will reduce the usage impact on the existing aquifers that humans and stock draw from.

A fully fracked well can use between 20-30ML of water and in many instances when fracked water is recycled, the amount of water extracted from aquifers will be much less. (Note 30ML is used in the following comparisons).

Beetaloo and Mungabroom pastoral stations carry approx. 85,000 head of cattle, who consume approx. 1,241ML water per year. This amount of water will service 41 fully fracked wells. Or put another way the amount of water the cattle will use in 9 & 12 years is as much

water needed for 400 to 500 wells (Origin's estimated well capacity). This does not take into account the significant water wastage on pastoral properties from leaking pipes, leaking tanks, broken bores, evaporation of uncovered dams etc.

There are an estimated 1 million mango trees in the NT. With an average water usage of 53,850ML per year, the mango industry uses as much water as 1,795 fracked wells.

In community discussions, there has been calls for the lined ponds, holding the backflow water, to be fully covered. This in part to protect native animals and birds from drinking the water. Whilst the bunged walls of the ponds will make it difficult for animals to access the ponds, birds will be able to access readily. In other industries, there are uncovered, untreated water sources that have not resulted in large bird kills, so there may not be a need to protect this water from bird species that appear to have capacity to detect whether water is safe for them to consume. It is also in part to reduce evaporation. If the gas industry is required to cover their ponds, this would set an expensive precedence for other industries, including mining and the pastoral industries, to cover their ponds and dams.

There are many types of feral animals roaming the NT including on pastoral properties and park lands. Improved management of these lands would result in significantly decreased feral numbers, particularly the larger consumers of water, being wild horses, buffaloes, donkeys and pigs. Estimations of these larger feral animals vary widely but a conservative reduction of 20,000 horses and 6,000 donkeys would save as much water annually as 11 fracked wells would use in their lifespan.

**Conclusion:** NARMCO considers that the proposed hydraulic fracturing activity in the existing exploration areas will not create an unacceptable risk to the ground and surface water in the NT.

## 2 LAND

Approx 2ha is cleared for an exploration well. Once exploration is complete the area is very carefully rehabilitated. If a well goes into production an area of approx. 200m<sup>2</sup> remains cleared.

The impact of a 200m<sup>2</sup> footprint is not dissimilar to the footprint of cattle watering points (bore, tank/s, trough or dams) on pastoral properties. In some situations where cattle have been left on one watering point for long periods, the impact on the vegetation, soil and native grasses can be much larger than 200m<sup>2</sup>. It is not typical practice for a pastoral property to rehabilitate watering points when they finish using that area on an annual or permanent basis.

Gas production well heads will be spread approx. 4kms apart. With each well head potentially supporting 12 wells, each gas company is likely to only have well heads amounting into double digits, eg Origin estimates 500 wells = 41 well heads.

Media reports confirm Beetaloo station has developed their property to have water on at about four-kilometre centres resulting in about 600 watering points. So the impact on the

land on this one pastoral property potentially exceeds, by 15 times, that of a major gas industry at the height of anticipated production. However, Beetaloo is held in high regard for undertaking these developments, as doing so are potentially reducing other impacts on their lands such as over grazing that can occur with less watering points.

Gas companies have used sound weed invasion minimisation practices in their exploration activities and it is anticipated this will continue into the operational activities. Some of these practices exceed that of industries currently accessing lands in remote areas. For example, there is no requirement for tourists to decontaminate their vehicles as they move offroad between differing biodiversity regions. Pastoralist, their contractors and service providers do not decontaminate when moving between properties. Government officials visiting remote communities do not decontaminate when travelling in and out of communities.

The exploration and production of natural gas has a very minimal footprint, particularly when compared to open cut mining and overgrazing of cattle paddocks. The visual impact of largely unkempt cattle watering points, particularly when over grazed, has potential to be more unsightly to tourists than 200m<sup>2</sup> well heads that are carefully maintained.

A new, open pit, iron ore mine established in the Roper River area several years. It trucked its ore some 180kms to the Bing Bong Port. Another opened up close by and hauled its ore on the Roper Highway then Stuart Highway to Katherine. Whilst both mines are now closed, the mining activity did not appear to have had any substantive, negative impact on the tourism industry in that area. It is difficult to image that the natural gas industry, with much less visual impact on the land, would cause lasting issues for the tourism industry.

Interestingly the arrival of a permanent US Marine base in the NT may do more to change the tourists' perception of the great outback, the last frontier, than natural gas wells will do.

### **3 AIR**

No comment

### **4 PUBLIC HEALTH**

There is adequate legislation, regulation and Australian Standards to address a number of the potential risks mentioned in the discussion paper, eg diesel fumes, physical safety. The potential risks in these areas are no greater than those in other industries, eg road transport accidents.

The gas companies have well developed practices for handling chemicals, flowback water and the potential for underlying chemicals and radioactive substances to be drawn to the surface. Other industries, particularly mining, can face similar issues and also have well developed practices for addressing these risks.

### **5 ABORIGINAL PEOPLE AND THEIR CULTURE**

No comment.

## 6 SOCIAL IMPACTS

Many of these potential impacts are impact that face any major development in remote areas or built up areas. The new developments at RAAF Base Tindal for example will trigger many of these issues, however there has been little protest, if any, about this large scale development. Lobbying by ‘anti-frackers’ to hold back the development of an onshore gas industry due to social impacts, whilst accepting other developments that trigger the same or similar impacts in an interesting viewpoint.

### Community cohesion

High use of seasonal, non local labour every year is a form of FIFO.

NT Cattle industry relies very heavily on gap year students and back packers to meet their core labour needs. They also rely heavily on contract service providers, who can only provide casual, often sporadic employment for their workers and many of whom also rely on gap year and back packer labour.

Similarly, the NT Tourism industry is seasonal and relies heavily on international backpackers or interstate travellers to meet their labour needs.

The NT Horticulture industry is very similar with most of its labour being imported into the region each year. Whilst traditionally this Industry has relied on employing casual labourers who are following the ‘harvest trail’, there has been a shift in this approach in some subsectors. In more recent years some mango and melon picking contractors have used immigration provisions to bring in groups of Samoans, Indonesians, Taiwanese workers for the season in a very structured manner. It is becoming rare for local labour to be engaged in this industry around Katherine.

At a community level we accept these forms of FIFO. We don’t really question it. All of these industries could do much more to engage and develop a local workforce, particularly an Indigenous workforce, but they don’t. Unfortunately at a local community level, this is not considered a problem. So why are the ‘anti-frackers’ placing a different standard of tolerance on the Onshore Gas Industry, making FIFO a big issue when it is going on in our local industries, year after year.

## 7 ECONOMIC IMPACTS

### Distribution

In terms of pastoralists the majority of NT pastoral operations are situated on leased land. Therefore the landowner (the Crown) not the tenant (pastoralist) has the right to negotiate minerals extraction compensation, not the tenant.

The *Pastoral Land Act 2016* section 38 1 (b) states that it is a condition of the pastoral lease that there is “a reservation of all minerals in or on the leased land”.

Therefore when an owner of a pastoral operation signs a pastoral land lease they do so knowing full well that it is a condition of the lease that there is “a reservation of all minerals in or on the leased land”. There appear to be no basis for pastoralist to be claiming a

forgone right to compensation for minerals extracted through hydraulic fracturing. Similarly there is no basis for pastoralist to be using hydraulic fracturing to claim a right to convert their pastoral leases to freehold titles.

If pastoral leasees consider they ought to be compensated for mineral extraction, they have a responsibility to lobby the Govt of the day to change the Pastoral Land Act NOT lobby specifically against hydraulic fracturing in the Natural Gas Industry. Similarly if pastoralist wish to change the law so their pastoral leases are converted to freehold, then they need to lobby the Government of the day and convince the public of the need to change the land title laws; and be prepared to compensate the Crown adequately for giving up the leasehold hand.

*The Pastoral Land Act 2016* does not specifically give lease holders a forgone right to 'disturbance compensation. However many mining and gas companies do provide a measure of compensation, often by way of infrastructure improvements for any direct business disruption, road usage and other impacts on their operations. NARMCO understands that the gas companies have been and will continue to be willing to work with leaseholders in this regard.

#### Net Impacts

Much of the land proposed for Hydraulic Fracturing is under pastoral lease, with a lesser amount potentially occurring on Aboriginal Land Trusts.

In terms of current direct revenue to the NT Govt, the rental/royalty return from the pastoral industry is remarkably low, with an estimated annual rental income of \$5-6m. Pastoral leases rents are calculated on the unimproved value of the pastoral land only. The lease rate is currently .616%. For example a property of \$2.1m UCV pays annual rent of only \$12,936, this is irrespective of whether a pastoralist has 2,000 head (est value \$2.4-3m) or 20,000 head, (est value \$24-30m). (Dept of Land Resources Management's Pastoral Lease Rental Notice for 2016/17).

Cattle production was estimated at \$333m in 2015, (DPIF, 2015). This same report indicates that the Agriculture, Forestry and Fisheries contributes only 2% of Gross State Product, with Mining contributing over 20%. Interestingly in an\ 2013 NT Treasury economic overview report, Manufacturing, which is often perceived to be almost non-existent in the NT, contributed approx. 9% GSP in 2012-13 and Construction contributing approx. 20% and Mining 15%, Agric/Forest/& Fish contributed approx. 2%.

The Pastoral industry is not a large employer, contributing only **2%** of total employment in the NT, (ABS, 2011). There were an estimated 1,200 full time employees in the industry (DPIF, 2015). In 2011 (ABS) Agriculture Forestry & Fisheries employed 1,929, whilst Construction employed 8,042 and Retail 8,016.

In term of economic and employment returns to the NT and its residents, there is clear value in supporting an Onshore Gas Industry, even if it were to be at the expense of the Pastoral Industry, although NARMCO remains convinced the two industries can co-exist and both can thrive co-operatively.

Below is a small comparison of the economic and employment values between the Pastoral industry and the anticipated Onshore Gas industry. Pls note the OGI figures are ‘success case’ not ‘aspirational case’.

<b>Industry</b>	<b>Pastoral Rent/Gas Royalties 2020-2040</b>	<b>GSP 2020-2040</b>	<b>Employment</b>
Pastoral Industry *	\$100m	\$7b	1,200 FTE
Onshore Gas Industry **	\$686m	\$17.2b	4,200 FTE

\*based on 2015 Dept of Primary Industry and Fisheries, “Overview and Outlook 2015” and Dept of Land Resources Management’s Pastoral Lease Rental Notice for 2016/17.

\*\* 2015 Deloitte Access Economics “Economic impact of shale and tight gas development in the NT”

### Distribution

The exploration activity generated by the Natural Gas Industry using hydraulic fracturing methods, to date has seen a range of local businesses being engaged, both in Katherine and Mataranka. Transport operators, civil construction companies, environmental consultants, accommodation and hospitality providers, engineers, and many more types of businesses have already benefited.

There have been Indigenous people and businesses engaged already, and that a small local Indigenous company has been engaged to provide year round services to several of the well sites in the Beetaloo basin is good sign of better things to come, should the Moratorium be lifted.

That local businesses will be readily engaged is not a given. Katherine Mining Services Association has been actively working with the gas industry for 4 years just to achieve the level of engagement currently seen. Local businesses who have been engaged have had to actively source their work.

Katherine Mining Services Association has developed to its current capacity with volunteer labour as it has no employees. It will be necessary to place additional industry development resources in Katherine, be that with Katherine Mining Services Association, NT Govt or both.

The seasonal nature of some of the key local industries creates significant economic challenges for local businesses. In addition many businesses are caught in dilemma whereby they cannot retain all their skilled staff in their off seasons but without permanent skilled staff they cannot commit to growing their business to the next levels.

It is extremely difficult for many employees to remain in the seasonal industries long term, as there are limited opportunities for stable career path. This means that employees who like the NT lifestyle are often forced to move interstate eventually to pursue more stable employment, or they leave their preferred industry to pursue job security in other industries.



A shale led Natural Gas Industry will be a relatively stable industry, operating all year round. Reliable industry and independent forecasting show this industry has a 30 to 60 year life. This industry will provide stable contract options for local business and provides real potential for local businesses to overcome their seasonal volatility. In addition local businesses will have improved prospects to offer year round employment and be able to retain skill employees and develop career paths for their employees.

## **8 LAND ACCESS**

### Land Access

The *Aboriginal Land Rights (NT) Act 1976* is long standing and ensures Traditional Owners have adequate rights to negotiate compensation. This Act sits within the Commonwealth's jurisdiction and has priority over any NT Govt legislation. The Act is robust and NARMCO considers that there is minimal risk that a hydraulic fracturing regulatory framework will dilute this Act.

Whilst the *Tenancy Act 2017* addresses the tenants right to quiet enjoyment and the *Business Tenancies (Fair Dealings) Act 2016* addresses compensation for disturbance, the *The Pastoral Land Act 2016* does not specifically give lease holders a right to enjoy 'quiet enjoyment' or 'disturbance compensation'.

Rather the *Pastoral Land Act* indicates there are various categories of people who also have a right to access a pastoral lease. For example general public can be on perennial water within a pastoral lease without the specific permission of the pastoral lessee (section 79); Aboriginal people can access the pastoral lease for specific purposes (section 38 & part 8); persons can be licensed to enter a pastoral lease to take property reserved to the Territory eg gravel, sand, wood (section 84).

There is a substantial evidence that pastoral lease holders, through the NT Cattlemen's Association are using hydraulic fracturing to obtain rights that they are not reasonably entitled to and in the process, are misleading the public in this debate.

The greater risk is not that the regulatory framework will not balance the rights of pastoral properties with those of gas companies but rather, through noisy lobbying, the rights of pastoral leaseholders will be elevated to a higher level than the original *Pastoral Land Act 1992* intended and the current Act 2016 caters for. And much higher than warranted, base on the very minimal lease payments that pastoralist pay for their leases.

## **9 REGULATORY FRAMEWORK**

### Economic impacts

#### Compliance and enforcement

It is generally understood that historically the NT Mining industry has been under resourced, particularly in relation to mining compliance. NT Govt can learn from this and commit adequate funds and other resources to ensure the compliance and enforcement of the regulatory framework is at an acceptable standard.

An NT Govt compliance team MUST be more centrally based in Katherine, not sitting 100's of kms away from the main action in Darwin. Basing a compliance team in Katherine will ensure the regulators will be closer to the industry activity thus improving their capacity to be well informed, be more up to date and be able to respond quicker to any issues. A Katherine based team will be able to create wide spread local networks to gain formal and informal information, particularly with workers and contractors in the industry who can report any concerns, including informally. Typically, Darwin based regulators do not get the opportunity to socialise across the Katherine region and are not well networked.

A Katherine based team will have greater knowledge of the local support capability and can be more pragmatic about implementing or recommending solutions to rising issues. A Katherine based team will have less distance/cost to travel for site inspections, thus be able to undertake inspections more frequently. By living in the Katherine region, the team will gain an improved understanding of the dynamics of the region, including the environmental, economic and social sensitivities and be more attuned to any issues that may impact adversely or positively on these sensitivities.

NARMCO advocates that the Panel recommend a Compliance Team be permanently based in Katherine for the duration of Onshore gas exploration and mining activity in the greater Katherine and Tennant Creek regions.

#### Complexity

This is a realistic risk given all Governments' propensity to over regulate. NT small to medium business does want the opportunity to participate in the gas exploration and mining activity. Overly regulation often creates entry barriers and unaffordable cost impost on small business and limits their capacity to be engaged in the industry.

NARMCO advocates that the Panel give consideration to their recommendations so as to limit contributing to the development of overly complex regulation, particularly where that may create entry barriers to local business.

#### Regulatory Capture

There is a risk that the regulatory body becomes reluctant to regulate. There are government agencies and community organisations who have capacity to highlight this behaviour should it become apparent.

There is equally a risk that the regulatory body becomes overzealous in their role in response to a portion of the community who are anti-fracking. The industry has limited options to appeal such behaviour should it occur.

NARMCO considers these risks to be acceptable, and they do not have a sufficient impact to warrant a ban on hydraulic fracturing.

End